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DESIGN FOR A CITY HOTEL

BY

CLARK WESLEY BULLARD

THESIS

For the Degree of

BACHELOR OF SCIENCE

IN ARCHITECTURE

COLLEGE OF ENGINEERING

UNIVERSITY OF ILLINOIS

Presented June 1909

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UNIVERSITY OF ILLINOIS

June 1, 1909

THIS IS TO CERTIFY THAT THE THESIS PREPARED UNDER MY SUPERVISION BY

CLARK WESLEY BULLARD

ENTITLED DESIGN FOR A CITY HOTEL

IS APPROVED BY ME AS FULFILLING THIS PART OF THE REQUIREMENTS FOR THE

DEGREE OF Bachelor of Science in Architecture

John Watrous Chase

Instructor in Charge

APPROVED:

Chas. E. Rifford (Picked)

HEAD OF DEPARTMENT OF Architecture

A CITY HOTEL.

In discussing this problem let us consider the relation of the building, above the first two stories, to the ground floor plan, which usually covers the whole building site. The arrangement of the light courts and the building is naturally governed by the shape of the lot. In this discussion only the rectangular building lot will be considered, as irregular shaped lots generally solve the question of courts without difficulty.

The conditions which govern the location of the courts is that they shall take up as little room as possible and afford light and air to all rooms, which, without the use of the courts, would be without these necessities. As many rooms as possible are placed so that they will get all their light and air from the street side of the building. The rooms opposite these outside rooms will have to be lighted and aired from an interior court. The general arrangement is therefor a corridor with rooms opening from it on both sides, one row of the rooms lighted from the outside and the other from an interior court.

The simplest case is where we have a narrow lot which is just wide enough for two rows of rooms with a central corridor, as in figure 1, Plate 1. This is, however, a very rare occurrence. The Hotel Touraine, in Boston, is an example of this arrangement.

One of the most common examples is, perhaps, the one shown in figure 2, Plate 1, that of a building with a

completely enclosed court, with rooms on all sides. Examples of figure 3, Plate 1, are the Niagara Hotel at Buffalo, New York, and the Hotel Schenley at Pittsburgh, Pennsylvania. Figures 4 and 5, Plate 1, are similar. Figure 6, Plate 1, is the typical plan of the New Planters Hotel at St. Louis and the St. Francis Hotel at San Francisco. Figure 7, Plate 1, is an example of the plan of the Jefferson Hotel at Richmond, Virginia. These are the more common block plans of the hotels as they are built to-day. Other hotels which are rather exceptional in the upper floor plans are the Hotel Blenheim at Atlantic City, New Jersey, figure 8, Plate 1, which is a summer resort hotel, and the Waldorf-Astoria in New York City, figure 9, Plate 1. The Waldorf-Astoria is the first of what might be called the modern hotels and is in reality two hotels which were built at different times and later combined into one large hotel. It is one of the best examples of the really high class hotels of to-day.

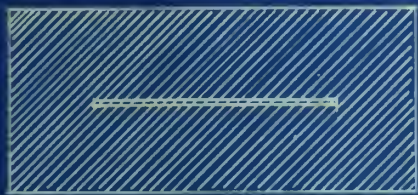


FIG. 1.

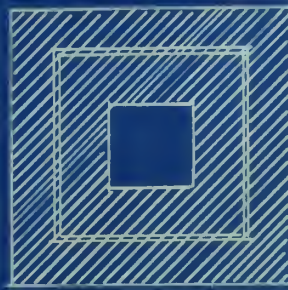


FIG. 2.



FIG. 3.



FIG. 4.

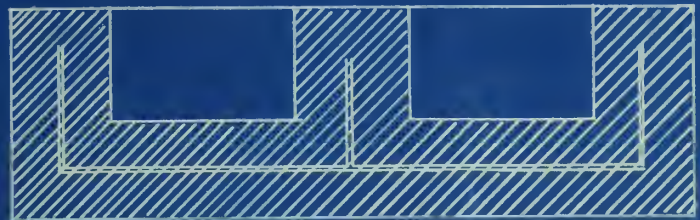


FIG. 5.

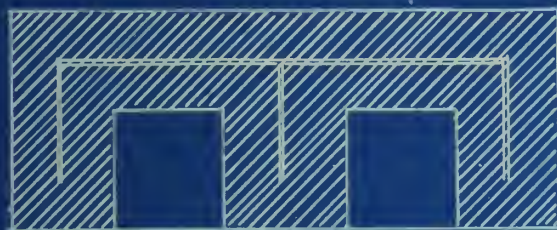


FIG. 6.

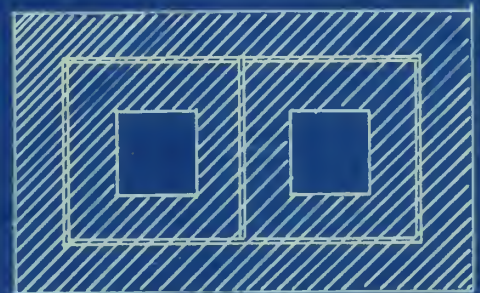


FIG. 7.



FIG. 8.

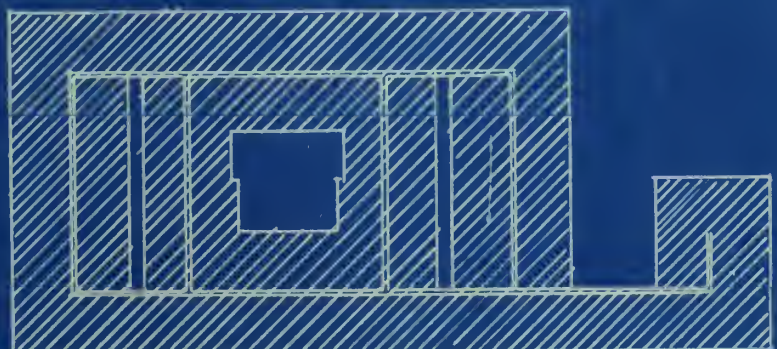


FIG. 9.

The designing of a large city hotel of to-day is a much harder task than it was twenty-five years ago, for in that time the requirement for hotels have increased so much that a hotel built a quarter of a century ago would be a very poor model to follow. The hotels of that time were much smaller and the problems of construction not nearly as difficult as they are to-day.

In the planning of a large hotel the first study is given to the arrangement of the sleeping accommodations. The disposition of the upper stories can be established practically without much reference to everything below, for with our modern methods, and the possibilities which steel puts within our reach, the lower stories can be arranged and divided almost without reference to the structural lines of support from above. In nearly all hotels, in fact, the large rooms are arranged with little reference to the upper portion of the building. So the first consideration of plan is for the bed rooms; the next for the business floor, so to speak, including the dining room, offices, etc.; and the last to be considered includes the kitchen and the service quarters generally. These can be tucked away to an apparently unlimited extent in the bowels of the earth. The three factors, the sleeping apartments, the first floor and the service, are almost independent of each other and will be studied separately.

There are three troublesome features to be considered in the planning of a hotel, namely, bath rooms, fire places, and closets. Before the days of modern plumbing few bath rooms were built but it is now becoming more and more nearly the rule in every first class hotel to provide each room with a bath room, or at least arrange rooms with one bath room adjoining two sleeping rooms. And in regard to the distribution of bath rooms themselves there are two distinct views. Some hold that so long as the bath rooms are well ventilated, outside light and air are in no sense necessities, and that only on rear passages and courtyards is it advisable to give up space on an outside wall for direct light into a bath room. Consequently, following this supposition, the bath rooms are placed inside and receive a certain amount of air and rarely a little light from shafts which are often reduced to an extreme minimum. In a general way the plan of lighting the bath rooms from an inside well seems to meet with more favor in the West than it does in the East. Whichever way adopted, permits, if properly installed, of perfectly clean, wholesome bath rooms, but it seems to sound more attractive to the public to say that every bath room has outside air and light, and though the value of this air and light may be exaggerated, the more recent hotels, certainly in the East, seemed to have adhered to this arrangement. As to the question as to whether bath rooms pay there is little doubt. The interest on the extra cost of the plumbing fittings is not sufficient to be seriously

considered in the matter. A bath room at the most takes up less than 40% as much room as a single sleeping room, but on the other hand a room with a bath generally rents for about 50% more than a room without a bath, and furthermore, it rents much quicker, so that from a purely financial point of view it would seem to be desirable that every room in a large hotel should have its independent bath room.

When the bath rooms are placed against an outside wall the problem of closets becomes a very simple one, as the total depth of the bath room is not sufficient to take up the average depth of the chambers and the remaining space works in very nicely for closet room.

The size of bed rooms in a hotel is something which has diminished a great deal within the last few years. To-day bed rooms are often less than 300 sqft. in area, and in some hotels they are even as small as 9' x 12', though this is an inadvisable minimum. In most first class hotels the rooms average from 9' x 16' up to 17 feet square in size. Unless considerations of expense are to be considered paramount, it may be said in a general way that no bed room ought to be less than 150 sqft. in area.

There are several features that enter into the equipment of each sleeping room. The heating is by a steam coil concealed in a window seat, drawing air from out of doors and controlled by something analogous to the Johnson system, so that all the guest has to do is to turn a pointer on the wall beside his bed to the degree of heat he desires,

the pointer actuating an electric or a pneumatic device which opens or closes the steam valves. The door to the corridor is usually provided with a transom, but it is customary to cover the glass with a muslin screen so that reflections can not be seen from the outside. Each room, furthermore, is equipped with a telephone communicating to a central station in the hotel by which the wants of the tenant can be known. The room is lighted by a central chandelier controlled by a switch near the door, besides which there are bracket lights each side of the dressing table.

A notable feature of all first class hotels to-day is the attention given to special suites. These suites are what are termed state apartments and are furnished and decorated very elaborately. These suites are, in a sense, however, mere flourishes, as the steady income of a hotel comes from the regular patron who asks only for a comfortable room and bath and runs up a greater portion of his bill in the cafe or the dining room.

A modern hotel has very little in the upper stories except the sleeping rooms. It seems to be the custom to provide only a slight accommodation for linen and storage on each floor, rather massing accommodations for such purposes in one place. Each story, however, is provided with a maid's closet, a men's and a women's toilet room, and very often a single public bath room; and then of course there are the service stairs, and there is usually on each floor a serving room

connected by a dumb waiter to the stories below, from which meals can be served to rooms.

It is very hard to find precise data as to servants' apartments in a modern hotel. The tendency is growing every year to eliminate residential servants as far as possible and to oblige all who are connected with a hotel, with the exception of the house-keeper and the manager, to live outside. As a matter of fact it is a pretty expensive luxury to house servants under any conditions in a first class hotel. When these are accommodated in a hotel their rooms are either disposed around inner wells, or what is a better way, the entire upper floor is given to their accommodation.

The width of corridors in the upper stories generally varies from 6' to 11' and many hotel men regard nine feet as an extreme minimum width.

As to the elevators, they should, at least, be arranged in pairs, but the service need not be specially rapid, and it has been found better generally to concentrate the elevators at one point rather than to spread them in different parts of the building.

The keynote of the arrangement of the principal floor of a modern first class hotel is ample circulation and publicity. Everything is subserved to affording opportunity to the guests to see each other and themselves, and to have abundant space in which to promenade, to show themselves and to observe. Consequently a great deal of space is given up to mere circulation and lounging rooms. The main apartment, if it may be so called, is at once hall, rotunda, office, news room and reception room. The dining room must be close at hand, and, if possible, separated from the strictly so-called public space by either draped openings or large windows. The corridors are made of ample proportions, and, so far as possible, each corridor leads to some notable feature so as to tempt the visitor to investigate. Everything is for show and to carry out the appearance of well bred interested leisure which is so prominent in our city hotels. There are a few features which are common to all and which are essential. The main entrance is directly into the lobby. Most of the modern hotels are equipped with revolving doors which obviate the necessity for any vestibules and at the same time increases the possibility of abundance of light for the large rooms which are necessitated by the program. Everybody can enter from the main entrance, but it is a feature of hotel etiquette that a lady shall enter by a separate entrance, if possible on one side, and, that, close by the ladies' entrance, there shall be a small waiting room, called, by courtesy, the

ladies' waiting parlor, which is usually a convenient resting place on the way either to the elevators, which ought to be close at hand, or to the dining room, which should never be far distant. Types of this arrangement may be seen in the New Willard, at Washington, the Hotel Touraine, at Boston, and also the Auditorium Hotel, at Chicago.

It is apparently not considered essential that the office or the main lobby or waiting rooms of a hotel shall be abundantly lighted from out of doors. It adds to the appearance of the lobby and office surroundings if daylight can be introduced even in limited quantities, but it is seldom practicable to so arrange the first floor as to dispense entirely with artificial light, and it apparently is not an imperative need to do so.

The location of the desk must be carefully studied. The clerks are supposed to keep an eye on everyone who enters or leaves the hotel, and the registry book should, if possible, be visible at a glance to guests entering the front door. The office includes a main counter where the guests are received and registered and rooms assigned them. Usually there is a distinct portion set aside for the reception of the keys, letters, etc., and the cashier's desk is usually an extension of the main counter. Beyond the mere fact that the main desk or office shall be in full view of the main entrance, there seems to be really nothing that governs its position.

The arrangement of the various features which have to be accommodated on the main floor calls for the exercise of a good deal of ingenuity. There must be space for a telephone operator's desk with at least two telephone booths immediately adjoining.

The coat or check room is another feature that receives far less attention than it should. A coat room is never too big, but it is often too small. It should be on the main floor immediately opposite the main desk, and in a rough general way the number of square feet should approximately equal the number of rooms in the hotel. This of course is the crudest kind of approximation, but it appears to fit some of the more convenient coat rooms. Immediately adjacent to this and as close as possible to the service elevators it is well to have a trunk room.

Space must also be provided for a telegraph office. If the hotel includes a ticker in its equipment, this apparatus is usually placed in the cafe or in the bar room.

The news stand is usually very prominently placed in the main lobby. It is seldom especially arranged for and more often consists simply of a counter built out into the room from one wall. For an ordinary hotel a space 10' x 14' would be ample. The theatre office is usually run in connection with the news stand and needs no special provision.

There should be a small ladies' waiting room reached by a separate entrance from out of doors, opposite the elevators

if possible, and close by the main desk. This is used only occasionally and only for a few moments at a time, and a very small apartment answers the purpose. Besides this there should be a writing room, a library and a ladies' parlor. These are purely show rooms. They are used so little that it is impossible to settle any data as to sizes, and their location depends entirely upon what is left of the floor area after the main offices and the dining room are set off.

It is usual in hotels of to-day to place the cafe and the barroom in the basement and reserve the restaurant on the main floor for ladies alone or with escorts. The dining room in the majority of cases occupies the most prominent corner and is disposed so as to get all the daylight possible. Quite frequently the dining room is helped out by the so-called palm garden, in which the service is supposed to be a little less formal, though practically there is no difference.

The size of the dining room in its relation to the hotel is something governed entirely by local conditions. The number of guests which can be accommodated in a room varies from one for every twelve feet in area, which is rather crowded, to one for every twenty or twenty-five feet in area, which is probably as near an approximation of the average as could be made. There are few first class hotels which depend entirely upon registered guests for patronage of the dining rooms, and the traffic from outsiders is the largest source of revenue. The most practical rule seems to be to plan the lobbies, ladies' waiting room, etc., as restricted as

will give satisfaction, and allot all the rest of the space in the first story to the dining room.

It may be said that opportunities for systematic planning are extremely few. Any attempt to plan academically, to balance the parts, to preserve or mark axes, is generally wrecked by conditions of site, exposure or practical requirements. Apparently the hotels which are most architectural in treatment are not necessarily the most popular or the best patronized, and the main essentials seem to be a large, monumental, lavishly decorated lobby entered directly from the street, a magnificent, richly appointed dining room, and especially ample circulation.

Just as the key of the arrangement of the first floor of a hotel is liberal, easy circulation for the guests, so the key of the arrangement of the basement is liberal, direct and easy facilities for transportation of supplies, from their reception at the service entrance, through the store rooms, kitchen and serving rooms, to the door of the dining room. The ideal arrangement is one in which all supplies are brought in at one point, where they are received and checked by a special clerk, assigned to store rooms which are near at hand, these store rooms being close by the cooks' headquarters, while on the other side of the kitchen begin the service departments, so that there is no occasion for those employed in the preparation of food on the one side to mingle or interfere with the waiters who deliver the finished products. The part of the architect in planning this portion of the hotel is limited to the providing of sufficient area to approximately accommodate what is likely to be needed in connection with the kitchen and dependencies. The exact subdivision of the space, the placing of the different appliances, is usually intrusted to one of the firms of contractors who make a specialty of fitting hotels and who are better able to judge of the needs and how to meet them than is the case with the architect in ordinary practice. The architect should, however, be perfectly familiar with the problem in a general way so that he may intelligently plan and provide space for the work of the specialist.

In most modern hotels of to-day all the space in the basement with the exception of the space given up to cafes, billiard rooms and barber shops, is given up to the kitchens, store rooms, etc. Very rarely is too much space allotted for such purposes.

As a rough approximate rule it may be said that the area of the kitchen and dependencies should be equal in square feet to ten times the number of sleeping rooms in the hotel. That is to say a three hundred room hotel would require a total area for kitchens, etc., of about three thousand square feet. Like all rules of this kind, however, such approximation should be used with great care, as conditions often make it impossible to gauge the size of a kitchen by the number of rooms in the hotel. In some respects a better rule to follow is to make the arrangement of ranges, steam kettles and serving tables as compact as possible and then give the balance of all the room that can be spared to the store rooms, refrigerators, wine rooms, etc. By making the actual cooking space restricted, a considerable gain can be had in time of service, and anything which reduces the distance in feet from the cooks' table to the dining room means quicker and better service. It seems that in most cases that the lack of space is generally in the storage. With more ample space for storage, supplies can be purchased in larger quantities and will be more readily available when wanted.

The kitchen and immediate dependencies are of course the principal features of the basement, but there is considerable other accommodation required in a large hotel. There should be a dining room for the help, and in some of the larger hotels separate dining rooms are arranged for the men and women. A dining room 20' x 30' would answer for help for anything except the very largest hotels, as the servants never all eat at once. Then there should be ample locker rooms for the help, sufficient to give in a general way a third as many lockers as there are sleeping rooms in the hotel. Lavatories and conveniences of this sort of course have to be proportioned in size to the building. There should be a room for the head steward, and in a large hotel it is customary to provide one for an assistant steward, in addition to which the chef requires a room for himself, each of these rooms being about 150 square feet in area. Space should also be provided for laundry and drying rooms, together occupying, for a three hundred room hotel, a space about 30' x 50'. There are also a host of other requirements of minor importance for which no rules can be laid down, as they vary indefinitely according to the circumstances.

It is usual in a large hotel to provide in the basement for a billiard room with at least three tables, for a barber shop accommodating not less than four chairs, and in addition to the cafe, to plan for a barroom, which should be arranged so that one can enter at one end and leave at the other, the bar occupying the entire side of the room. An apartment

15' x 24' should be ample for the largest of barrooms. The men's public lavatories for the guests are also usually placed in the basement convenient to the billiard room, to the barroom and to the main stairs leading to the first story. The boot-blackening stand with accommodation for not less than four chairs is best placed in an ante-room adjoining the lavatory. It goes without saying that all these basement rooms should be kept bright and clean in appearance and arrangements made for the most ample and thorough ventilation.

The construction of the walls and partitions about the kitchen, store rooms, etc., is usually of such nature as to admit of being readily and thoroughly cleaned. There is no material which seems to answer so thoroughly for walls in this connection as enameled brick. Thin partitions where practicable, are often made of heavy wire netting so as to allow of ample ventilation, and where wooden partitions are necessary they are best set up six inches above the floor so as to prevent accumulation of dirt. None of the floors anywhere in the basement should be of wood, and where plaster is considered necessary it seems to be the practice to coat it with enamel paint.

There remains yet to be taken into consideration the steam and power plant and the machinery. These constitute a very large item. In most cases the entire sub-basement is devoted to these purposes and there is generally little room left. The points to be considered in connection with the planning of boilers and machinery in a hotel are about the

same as those which are involved in the construction of any large building, except, however, that in all first class hotels an ice and refrigerating machine constitutes a very important factor. This again is a matter for expert advice, but in a general way it may be said that a hotel with three hundred rooms would require a maximum capacity of about thirty tons of refrigeration per day, which would consume in the vicinity of four hundred horse power hours in steam, and the entire ice plant would require a floor area of about one thousand square feet. If ice is to be made in any great quantities the available floor space should be increased twenty-five per cent.

In devising the electric generating plant for a hotel, allowance must be made for a certain amount of power to be used in the kitchen, etc. There are a number of devices, such as ice cream freezers, egg beaters, knife cleaners and sharpeners, which are operated to advantage by small independent motors. For a three hundred room hotel it would be well to allow thirty-five horse power for fans, motors, etc., in connection with the kitchen, including the dumb-waiters.

The stairs between the kitchens and the dining room are best arranged in pairs, so that the waiters can ascend on one side and descend on the other. When this is impracticable, single stairways should be not less than six feet wide, with a strong hand rail down the center. Dumb-waiters are provided to run from the kitchen to the serving room of the floor above, and where practicable, from the kitchen through the private

serving rooms in each of the sleeping floors. An automatic electric dumb-waiter which can be set so as to stop at any given floor is best adapted for this purpose.

It is a good practice where possible to carry a separate smoke pipe from each range, so as to ensure thorough draught. Where the ranges are set in the middle of the kitchen the draught has to be down and across under the floor. The separate smoke pipes from the ranges are sometimes combined in a single vertical shaft, but it is better to carry the pipes up independently above the roof, enclosing them in a large shaft which serves as ventilation exhaust from the kitchen and connect directly to the metal hood enclosing the tops of the ranges. For a three hundred room hotel the size of this exhaust duct would be about fifty square feet.

The quantity of water which is used so continuously around a hotel has made practicable the utilization of artesian wells sunk within the premises. Many of our largest hotels draw their supply for boilers and for washing from wells and occasionally the well furnishes water of sufficiently excellent quality to be used for drinking purposes. This results not only in great economy, but makes the control of the water system much easier. If an artesian well is to be provided for, the space for pumps would be about fifteen feet square.

In conclusion, it can be said that in a problem so complex as the modern hotel, it would be impossible to lay down any exact rules for planning or arrangement which could be applied indiscriminately. There is no structure with which the architect has to deal that calls for a larger amount of specialized technical knowledge.

D A T A S H E E T.

Bath room, maximum area is 40% of a single sleeping room.

Bed room, minimum area not less than 150 square feet.

Corridor, minimum width is 9 feet.

Coat room, area in sqft. = number of rooms in hotel.

News stand, about 10' x 14' in size.

Dining room, 20 sqft. allowed for each person.

Kitchen, area in sqft. = 10 x number of sleeping rooms.

Service dining room, about 20' x 30' in size.

Service lockers, one third as many lockers as sleeping rooms.

Head steward's room, about 150 sqft. in area.

Chef's room, about 150 sqft. in area.

Laundry and drying room, about 30' x 50' in size.

Barroom, about 15' x 24' in size.

Exhaust duct from kitchen, about 50 sqft. in area.

Pumps for artesian wells, about 225 sqft. in area.

Note: All the data given above was taken from well known hotels and is fairly reliable. But it should be remembered that conditions in different localities vary and therefore this data should be used merely as a guide to give the architect some idea as to the relative sizes of the different rooms of the hotel. For many rooms, such as dining rooms, parlors, etc., it is almost impossible to give any accurate data as the requirements for such rooms varies so much in different localities.

B I B L I O G R A P H Y.

The American Architect, Vols. 88, 90, 91, and 92.

Plates 1552, 1613, 1633, 1636, 1645, and 1661.

The Brickbuilder.

May - 1905 - Main Lobby, Hotel Rensselaer, Troy, N. Y.

Jan.- 1905 - Hotel Imperial, New York.

Oct.- 1905 - Hotel Jermyrn, New York.

Dec.--1905 - Canterbury Hotel, Boston.

The Brickbuilder, Vol. 12.

The American Hotel, by C. H. Blackall.

The Construction News, Vol. 27, No. 4.

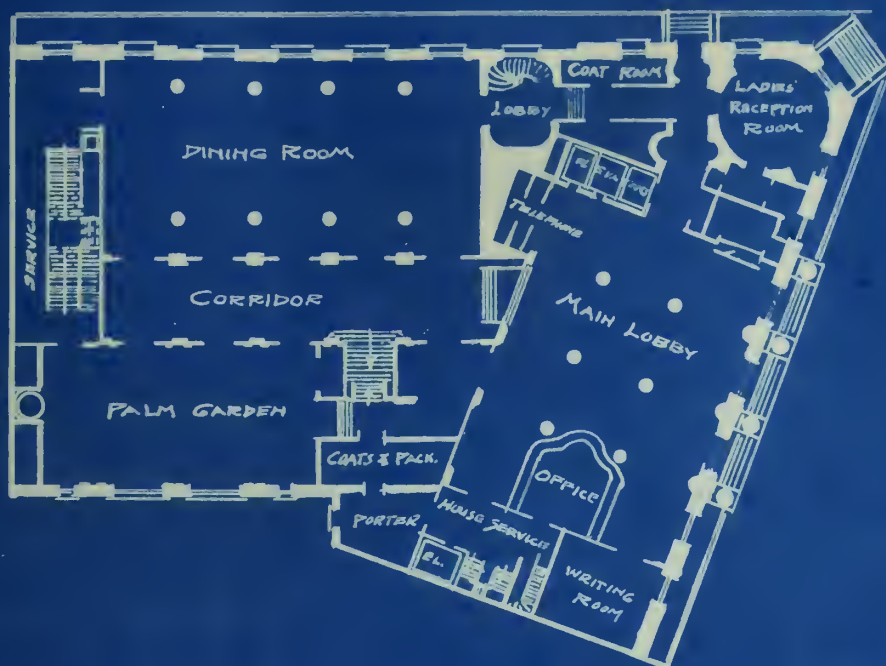
The Hotel Lasalle, Chicago, by H. W. Martin.

The Architectural Record.

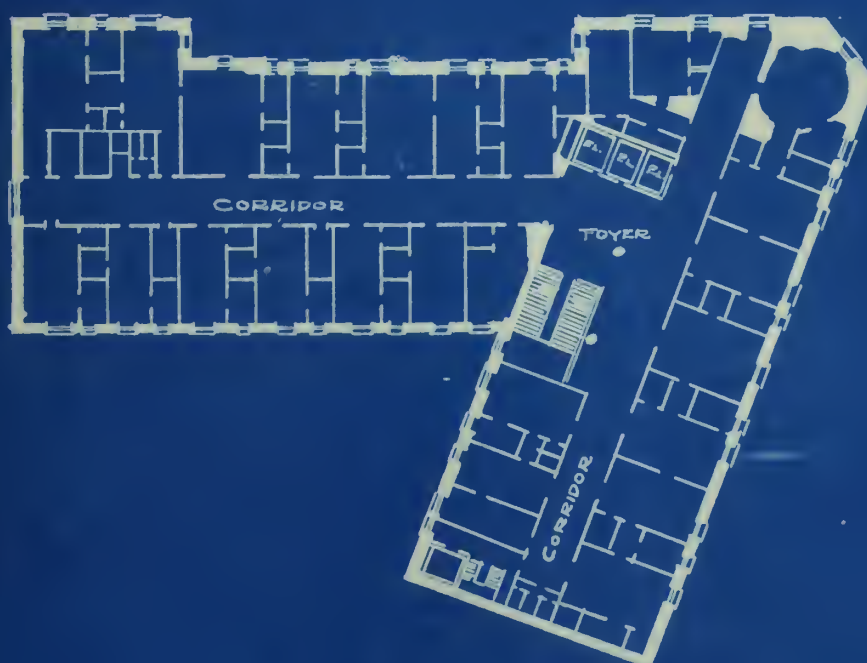
The Hotel St. Regis, Vol. 15.

The Plaza Hotel, Vol. 22.

Hotels, by Professor J. M. White.



FIRST FLOOR PLAN



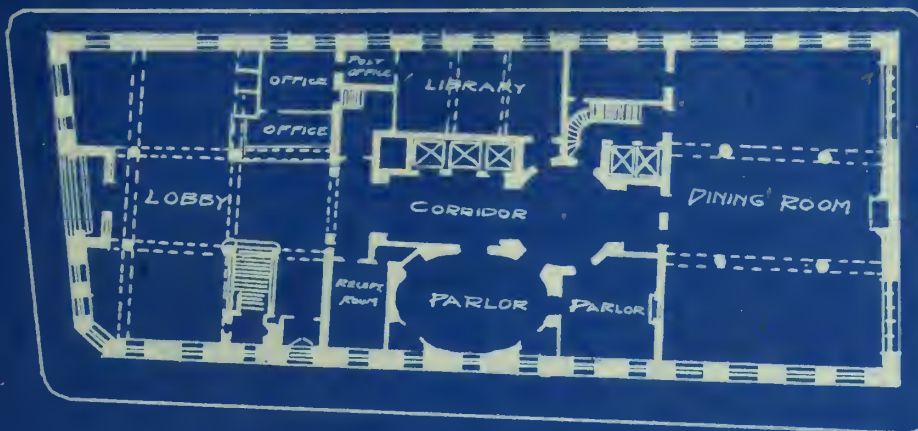
FIFTH FLOOR PLAN

NEW WILLARD HOTEL

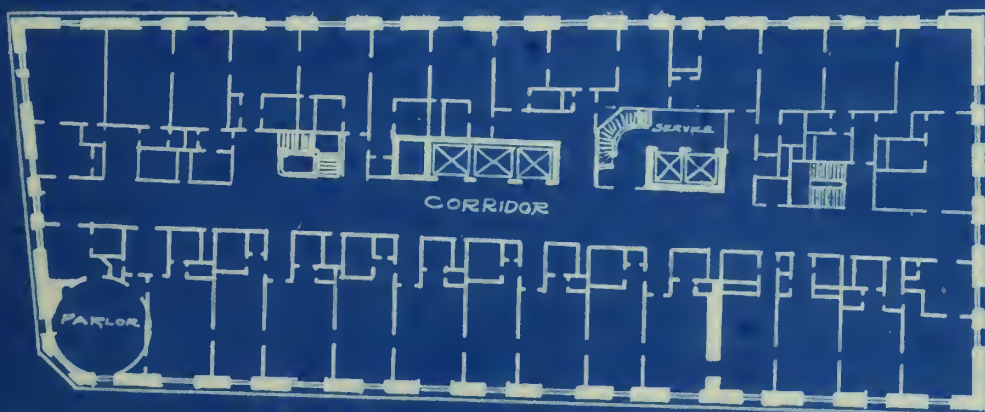
WASHINGTON-D.C.

H.J. HARDENBERGH - ARCHITECT.

PLATE • 2.



FIRST FLOOR PLAN



NINTH FLOOR PLAN

HOTEL TOURAINE

BOSTON - MASS.

WINSLOW & WETHERELL-ARCHITECTS.





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